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ADVOCATE OF PEACE.

APRIL, 1845.

CAPACITY OF THE EARTH FOR POPULATION.

The advocates of war have heretofore argued its necessity as a means of preventing an excessive multiplication of mankind. Still is it gravely objected by some to the cause of peace, that it would, if completely successful, come ere-long to find the world with a population so dense and superabundant as to occasion a greater amount of suffering than has ordinarily resulted from the ravages of the sword. Such an objection may seem to most of our readers unworthy of notice; but it has been urged by so many men of eminent ability and learning as to justify, if not demand, a passing refutation. The subject opens a wide range of discussion concerning the laws of population, or the principles which regulate its increase or diminution; but, without entering at all upon this inquiry, we shall avail ourselves chiefly of some facts collected by a distinguished author, to illustrate the almost illimitable capacity of the earth for the support of population.*

The most populous country on the globe has never *approached* the limits assigned by nature to the increase of mankind, or the capacity of the soil for their comfortable support. No country has ever been more populous in proportion to its extent than Ireland; and certainly there is none now in existence to be compared with its density. Its population averages 2,545 to the square marine league. Now, Ireland contains 12,000,000 arable acres, and 4,900,000 of wastes capable of agricultural improvement, besides 2,416,000 of mountain pasture. Mr. Newerham, a good authority, calculates, that an acre of potatoes will produce an average of 22,960 pounds of solid nourishment, and that a person is well fed with six pounds of potatoes in a day. Each person then will consume 2,190 pounds in a year, and an acre will yield food sufficient for ten persons. Supposing, therefore, that only *one-third* of the arable acres *now* under cultivation were annually devoted to this crop, they would yield food for 40,000,000,—more than five times as many as Ireland now has, and still have *two-thirds* for fallows, or for the production of other kinds of sustenance for man and beast. Nor does this estimate include either the 2,416,000 acres of mountain pasture, or the 4,900,000 acres of wastes capable of cultivation; in all, 7,316,000 acres, making the entire surface of the island to contain nearly 20,000,000 acres, one-half of which, if devoted to potatoes, might support a population of no less than 100,000,000!

Let us next look at England and Wales, both together not equal in extent to some of our single States. They contain 25,350,000 acres in tillage and meadow, besides 3,454,000 capable of improvement, and 3,256,000 of barren wastes. Mr. Young, the well-known writer on English agriculture, estimates an acre of wheat to yield at an average one-third of the solid nourishment derived from one of potatoes. Supposing then one-third of these arable acres devoted to the staple food of the country, and two-thirds to the maintenance of animals, and the production of luxuries, it follows that, if

* Alison on Population, Vol. II, Chap. xvii.

the people should live generally on wheat, 25,000,000, and, if on potatoes, 75,000,000 could be maintained without encroaching on the very ample share of two-thirds, besides all the wastes, set apart for fallows, for luxuries, and the support of animals. This proceeds on the supposition, that the land shall produce annually three quarters or six bolls; a very low estimate, for, in the inferior climate of Scotland, eight or ten bolls are considered as no extraordinary crop. Nor would this vast addition increase the density of the population, according to the first view, beyond that on the margin of the lake of Zurich, where, with scarce an acre and a quarter to each individual, the comfort and well-being of the peasantry exceed that of any spot on the globe. If only one-half of the 32,000,000 acres in England and Wales were cultivated with potatoes, they would, according to the calculation for Ireland, support a population of 160,000,000—more than ever bowed to the eagles of Imperial Rome, and some three-fourths as many as all the present inhabitants of Europe!

China and Hindostan are generally brought forward as examples of population pressing on the means of subsistence; but a slight survey will prove, that they are now very far from the limits of their capacity in this respect. In the peninsula of India, there are 109,200 square marine leagues, and 101,000,000 inhabitants, only 925 to the square league; while the British isles contain 2,120; considerably more than twice as many, to the square league. In England and Wales, there are 4,840 square marine leagues; and if they could maintain in ease and comfort, 25,000,000 on wheat, and 75,000,000 on potatoes, it follows that India could support, on the former food, 500,000,000, and, on the latter, 1,500,000,000! This too proceeds on the supposition, that two-thirds of the whole country, besides the share allotted to the support of man, is set apart for the maintenance of animals, or the production of luxuries, and that the soil of Hindostan will yield no more than that of Britain; both of which suppositions are greatly within the truth, since rice is the usual food of the natives, and double or triple crops can be obtained in a year. If devoted to potatoes, or any other crop that would maintain as large a number as potatoes can in Ireland, one half the surface of India alone, might suffice for the support of no less than 6,000,000,000 souls,—more than seven times as many as are now on the whole globe!

The superficial area of China, including Chinese Tartary, amounts to 463,000 square marine leagues, and would, if peopled as well as Great Britain, have a population of 971,000,000. If cultivated as the arable part of England might be, it would, on the supposition of only every third acre being devoted to wheat, and all the remainder to fallow, grass and luxuries, maintain 2,300,000,000 people, and, if cultivated with potatoes, or an equivalent crop, no less than 6,900,000,000!

The Ottoman empire is about nine times as large as the British isles, containing 825,000 square miles, while the British isles comprise only 91,000. The population, amounting in Europe to 11,240,000, is 470 to the square league; or Asia to 10,548,000, is 180 to the square league; and in Egypt to 3,000,000, is 1800 to the square league in the cultivated districts on the Nile. If peopled as well as Britain, the whole empire would contain 170,000,000, instead of 25,000,000, and would, according to the foregoing calculations, raise from only one-third of the soil wheat enough for 400,000,000, and potatoes sufficient for 1,200,000,000!

North America contains 607,000 square marine leagues, and would, if peopled like the British isles, have a population of 636,000,000. If 300,000 square leagues, less than half of its entire surface, were cultivated as England in the foregoing view might be, it would yield wheat enough for 4,500,000,000 souls, and potatoes sufficient for 13,500,000,000!

There seems hardly any limit to calculations of this sort. In South America there are 571,000 square marine leagues; and, if we suppose only 250,000 capable of cultivation, it would, if as densely peopled as the British

isles, contain 535,000,000 souls, and would raise from *one-third* of *less* than *half* the whole surface, wheat sufficient for 1,250,000,000, and potatoes for 3,750,000,000 ! The Russian empire, containing 616,000 square marine leagues, would, if only one-half be supposed capable of cultivation, and peopled as Great Britain is, have a population of more than 600,000,000, and might, according to the foregoing calculations, raise food sufficient of one kind for 1,450,000,000, and of another for 4,350,000,000 !

If these calculations seem overcharged from the fact, that so large a proportion of the globe is composed of mountains or deserts, we reply, that in warm climates men find subsistence to a very high elevation in mountainous regions, which are often peopled more thickly than the plains. Switzerland, though almost entirely mountainous, and most of it unproductive, yet has a population of 1,175 to the square league, six times that of the Asiatic provinces of Turkey ; and Italy, though filled for the most part by the Apennines, contains no less than 1,967 to the square league. In Peru a dense population is frequently found in plains or valleys 10,000 feet above the level of the sea ; and at this elevation a single valley contained in the time of the Incas 700,000 souls. We should also bear in mind, that agriculture has never yet been carried in any part of the world to the highest point of attainable perfection ; that in tropical climates even the coldest months are continually producing food for man ; that the same space which will support two individuals on wheat, would, in southern climes, feed fifty on banana ; that in Ceylon a single tree will maintain whole families for successive generations, nor is it unusual to see the one hundred and fiftieth part of a cocoa tree sold as a separate property ; that in Egypt vegetation goes on through the whole year ; and even as far north as Palestine, the soil which has borne two crops in summer, yields another of barley in winter ; that double crops are universal on the plains of Lombardy, while in the Campagna of Naples, a triple crop of vines, wheat and Indian corn, annually reward the labors of the husbandman. It will also be borne in mind that none of the foregoing estimates include the vast resources of the ocean, which alone might suffice for the support of more than all the present population of the globe.

But we will bring these speculations to a close, by glancing at the capacity of the whole earth for the sustenance of mankind. Its entire surface contains nearly 200,000,000 square miles ; and, if we suppose only 60,000,000, or less than one-third of the whole, to be dry land, and only one-half of this, which is equivalent to 19,200,000,000 acres, to be cultivated with potatoes, or with some other crop equally productive of food for man, it would at this rate maintain in comfort the prodigious number of 192,000,000,000 souls ! or two hundred and forty times as many as the present population of our globe !!

ELLIOTT'S THOUGHTS ON PEACE.—NO. IV.

THE STANDARD OF THE BIBLE TOO HIGH !—No one doubts but that we are taught in the Scriptures to submit to evil, and to forgive our enemies. Love is the spirit of the religion we profess—love, not only to the pure and innocent, to our family and our friends, but to the sinner, the degraded, to those who injure us, and despitefully entreat us. This doctrine carried to its extreme, is the spirit of martyrdom ; it commands us to suffer ourselves rather than to inflict suffering upon others. Obedience to this law of love is the perfection of character ; it is the elevation of the moral over the animal man ; it is the exaltation of man to the station for which he was designed, making him but little lower than the angels ; it is the principle which all men reverence and admire.

But how often are we told that the structure of society is such as to forbid this height of virtue ! It is, say they, a beautiful theory, a lovely